[5.8] Opening variables in GraphLink changes some characters

Some characters in strings are changed by the GraphLink software if file variables using these characters are opened. This is a problem if the program is distributed to users as a file created with GraphLink. The characters will not be converted if the program is simply sent from GraphLink with *Link Send*, and the program will work correctly. However, if the user first opens the program file, then the characters are converted and the program will not work. This tip applies to AMS 2.05 and the PC version 2.1 of the GraphLink software.

Characters with these codes are all converted to "?", which is char(63):

1, 3 - 9, 11, 14-17, 19 - 21, 23 - 27, 127, 167, 170, 174, 182, 198, 208, 222

Also:

char(12) is changed to char(126)
char(166) is changed to char(124)
char(184) is changed to char(183)
char(247) is changed to char(47)

And note that:

- char(2) can be copied as a string, but will locate the cursor when pasted.
- char(10) pastes as the line feed symbol in TI Basic programs on the calculator, but pastes as an actual line feed in GraphLink.
- char(13) pastes as the carriage return symbol in TI Basic programs on the calculator, but pastes as an actual carriage return in GraphLink.

For the character codes, refer to the table *TI-89 / TI-92 Plus Character Codes* in Appendix B of the TI-89/TI-92+ *Guidebook*.

You can create a special character by using *char(code)* at the entry line, where *code* is the numeric code for the character. For example, to create the filled-square character:

1. Enter *char(16)* in the entry line and press [ENTER]. The character string is placed in the first answer level of the history display.
2. Press [UP] to select the character string.
3. Press [COPY] to copy the string. [COPY] is [DIAMOND] [C] on the TI-92+, and [DIAMOND] [SHIFT] on the TI-89.
4. The special character string is now in the clipboard, and can be pasted where needed, for example, in a program or function in the program editor.

The solution to the character-conversion problem is to avoid the procedure above, and instead use the *char()* function to create any special characters which are needed in your programs. If you do use the procedure, then you should at least warn the user not to open the program files in GraphLink before sending them to the calculator.

I used this process to determine which characters are changed by GraphLink:

1. Create a string of characters to test at the entry line. For example, *char(3)&char(4)&char(5)* creates a string of three characters. Save the string to a variable called *l1*.

2. Receive *l1* from the calculator from the calculator with GraphLink. Open *l1* in GraphLink and copy the string to the clipboard.
3. Open a new program file in GraphLink called *tstr()*, and paste the string. *tstr()* saves the pasted string to variable *l2*, as shown below.
4. Send *tstr()* to the calculator with GraphLink and run it, to save the string to variable *l2*.
5. Use the *strcompr()* function shown below to compare the original string *l1* to the (possibly) modified string *l2*, and return the differences, if any.

This is the program *tstr()*, which is used to save the converted string to *l2*.

```
tstr()
Prgm
"???"→l2       © Paste string l1 in place of "???"
EndPrgm
```

This is *strcompr()*, which compares the two strings:

```
strcompr(α,β)
Func
©Compare strings α, β; return differences as character codes
©1jan2ØØ2/dburkett@infinet.com

Local k,res,c

if dim(α)≠dim(β):return "dim error"

{}→res

For k,1,dim(α)
 if mid(α,k,1)=mid(β,k,1) then
  {Ø}→c
 else
  {ord(mid(β,k,1))}→c
 endif
 augment(res,c)→res
EndFor

return res

EndFunc
```

strcompr() returns a list with one integer for each character in the strings. If the corresponding characters are the same, zero is returned. If the characters differ, the character code for string *l2* is returned. For the example I'm using, this call

```
strcompr(l1,l2)
```

returns {63,63,63}, indicating that none of the converted string characters match the original characters, and they have all been converted to char(63), which is "?".